

ABSTRACT

A switching regulator is disclosed that is able to prevent reverse direction current flow without using a dedicated diode even when a PMOS transistor is used as a switching transistor of a step-down switching regulator. A selection circuit is provided to control connection of the substrate gate of the switching transistor, and a control circuit controls the selection circuit to connect the substrate gate to the drain of the switching transistor when the voltage on an input terminal of the switching regulator is less than or equal to the voltage on the output terminal of the switching regulator, and connect the substrate gate to the source of the switching transistor when the voltage on the input terminal is greater than the voltage on the output terminal.